

AMENDMENT UNDER 37 C.F.R. § 1.111  
U.S. Application No.: 10/088,306

**AMENDMENTS TO THE CLAIMS**

**This listing of claims will replace all prior versions and listings of claims in the application:**

**LISTING OF CLAIMS:**

1. (currently amended): A cleaning gas for semiconductor production equipment, which is a cleaning gas for removing deposits in the equipment, comprising an inert gas and at least two gases selected from the group consisting of SF<sub>6</sub>, F<sub>2</sub>, and NF<sub>3</sub> excluding the combination of F<sub>2</sub> and NF<sub>3</sub> alone.

wherein F<sub>2</sub> and/or NF<sub>3</sub> is from 0.01 to 5 and the inert gas is from 0.01 to 500 in terms of the volume ratio assuming that SF<sub>6</sub> is 1.

2. (previously presented): The cleaning gas for semiconductor production equipment as claimed in claim 1, comprising SF<sub>6</sub>, F<sub>2</sub>, and an inert gas.

3. (previously presented): The cleaning gas for semiconductor production equipment as claimed in claim 1, comprising SF<sub>6</sub>, NF<sub>3</sub>, and an inert gas.

4. (previously presented): The cleaning gas for semiconductor production equipment as claimed in claim 1, comprising SF<sub>6</sub>, F<sub>2</sub>, NF<sub>3</sub>, and an inert gas.

5. (previously presented): The cleaning gas for semiconductor production equipment as claimed in claim 1, wherein the inert gas is at least one selected from the group consisting of He, Ne, Ar, Xe, Kr and N<sub>2</sub>.

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6. (previously presented): The cleaning gas for semiconductor production equipment as claimed in claim 5, wherein the inert gas is at least one selected from the group consisting of He, Ar, and N<sub>2</sub>.

7. (canceled).

8. (previously presented): The cleaning gas for semiconductor production equipment as claimed in claim 7, wherein F<sub>2</sub> and/or NF<sub>3</sub> is from 0.1 to 1.5 and the inert gas is from 0.1 to 30 in terms of the volume ratio assuming that SF<sub>6</sub> is 1.

9. (previously presented): The cleaning gas for semiconductor production equipment as claimed in claim 1, which contains at least one gas selected from the group consisting of perfluorocarbon, hydrofluorocarbon, perfluoroether and hydrofluoroether.

10. (previously presented): The cleaning gas for semiconductor production equipment as claimed in claim 9, wherein the perfluorocarbon and hydrofluorocarbon each has from 1 to 4 carbon atoms and the perfluoroether and hydrofluoroether each has from 2 to 4 carbon atoms.

11. (currently amended): A cleaning gas for semiconductor production equipment, which is a gas for removing deposits in the equipment, comprising an oxygen-containing gas, an inert gas and at least two gases selected from the group consisting of SF<sub>6</sub>, F<sub>2</sub>, and NF<sub>3</sub> excluding the combination of F<sub>2</sub> and NF<sub>3</sub> alone.

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wherein F<sub>2</sub> and/or NF<sub>3</sub> is from 0.01 to 5, the oxygen-containing gas is from 0.01 to 5 and the inert gas is from 0.01 to 500 in terms of the volume ratio assuming that SF<sub>6</sub> is 1.

12. (previously presented): The cleaning gas for semiconductor production equipment as claimed in claim 11, comprising an oxygen-containing gas, an inert gas, SF<sub>6</sub>, and F<sub>2</sub>.

13. (previously presented): The cleaning gas for semiconductor production equipment as claimed in claim 11, comprising an oxygen-containing gas, an inert gas, SF<sub>6</sub>, and NF<sub>3</sub>.

14. (previously presented): The cleaning gas for semiconductor production equipment as claimed in claim 11, comprising an oxygen-containing gas, an inert gas, SF<sub>6</sub>, F<sub>2</sub> and NF<sub>3</sub>.

15. (previously presented): The cleaning gas for semiconductor production equipment as claimed in claim 11, wherein the oxygen-containing gas is at least one selected from the group consisting of O<sub>2</sub>, O<sub>3</sub>, N<sub>2</sub>O, NO, NO<sub>2</sub>, CO and CO<sub>2</sub>.

16. (previously presented): The cleaning gas for semiconductor production equipment as claimed in claim 15, wherein the oxygen-containing gas is O<sub>2</sub> and/or N<sub>2</sub>O.

17. (previously presented): The cleaning gas for semiconductor production equipment as claimed in claim 11, wherein the inert gas is at least one selected from the group consisting of He, Ne, Ar, Xe, Kr and N<sub>2</sub>.

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18. (previously presented): The cleaning gas for semiconductor production equipment as claimed in claim 17, wherein the inert gas is at least one selected from the group consisting of He, Ar, and N<sub>2</sub>.

19. (canceled).

20. (previously presented): The cleaning gas for semiconductor production equipment as claimed in claim 19, wherein F<sub>2</sub> and/or NF<sub>3</sub> is from 0.1 to 1.5, the oxygen-containing gas is from 0.1 to 1.5 and the inert gas is from 0.1 to 30 in terms of the volume ratio assuming that SF<sub>6</sub> is 1.

21. (previously presented): The cleaning gas for semiconductor production equipment as claimed in claim 11, which contains at least one gas selected from the group consisting of perfluorocarbon, hydrofluorocarbon, perfluoroether and hydrofluoroether.

22. (previously presented): The cleaning gas for semiconductor production equipment as claimed in claim 21, wherein the perfluorocarbon and hydrofluorocarbon each has from 1 to 4 carbon atoms and the perfluoroether and hydrofluoroether each has from 2 to 4 carbon atoms.

23. (withdrawn): A method for cleaning semiconductor production equipment, comprising use of the cleaning gas as claimed in claim 1.

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24. (withdrawn): The method for cleaning semiconductor production equipment as claimed in claim 23, wherein the cleaning gas as claimed in claim 1 is excited to produce plasma and the deposits in the semiconductor production equipment are removed in the plasma.

25. (withdrawn): The method for cleaning semiconductor production equipment as claimed in claim 24, wherein the excitation source for the plasma is a microwave.

26. (withdrawn): The method for cleaning semiconductor production equipment as claimed in claim 23, wherein the cleaning gas as claimed in claim 1 is used at a temperature range of 50 to 500°C.

27. (withdrawn): The method for cleaning semiconductor production equipment as claimed in claim 23, wherein the cleaning gas as claimed in claim 1 is used at a temperature range of 200 to 500°C in a plasmaless system.

28. (withdrawn): A method for cleaning semiconductor production equipment, comprising use of the cleaning gas as claimed in claim 11.

29. (withdrawn): The method for cleaning semiconductor production equipment as claimed in claim 28, wherein the cleaning gas as claimed in claim 11 is excited to produce plasma and the deposits in the semiconductor production equipment are removed in the plasma.

30. (withdrawn): The method for cleaning semiconductor production equipment as claimed in claim 29, wherein the excitation source for the plasma is a microwave

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31. (withdrawn): The method for cleaning semiconductor production equipment as claimed in claim 28, wherein the cleaning gas as claimed in claim 11 is used at a temperature range of 50 to 500°C.

32. (withdrawn): The method for cleaning semiconductor production equipment as claimed in claim 28, wherein the cleaning gas as claimed in claim 11 is used at a temperature range of 200 to 500°C in a plasmaless system.

34. (withdrawn): The method for producing a semiconductor device as claimed in claim 33, wherein the fluorocompound is at least one compound selected from the group consisting of HF, SiF<sub>4</sub>, SF<sub>6</sub>, SF<sub>4</sub>, SOF<sub>2</sub>, SO<sub>2</sub>F<sub>2</sub>, and WF<sub>6</sub>.

36. (withdrawn): The method for producing a semiconductor device as claimed in claim 35, wherein the fluorocompound is at least one compound selected from the group consisting of HF, SiF<sub>4</sub>, SF<sub>6</sub>, SF<sub>4</sub>, SOF<sub>2</sub>, SO<sub>2</sub>F<sub>2</sub>, and WF<sub>6</sub>.